TORNEY DOCKET NO. 21-P056US



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Khabashesku, et al.

Serial No.:

10/714,014

Filing Date:

November 14, 2003

Art Unit:

1754

Title: Method for Functionalizing Carbon Nanotubes Utilizing Peroxides

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Sir:

CERTIFICATE OF MAILING UNDER 37 CFR 1.8

I hereby certify that the attached correspondence is being deposited with the USPS, first class postage, in an envelope addressed to Patents, P.O. Box 1450.

Signature

INFORMATION DISCLOSURE STATEMENT UNDER 37-C.F.R. § 1.97(b) -

Applicant hereby submits the following references in accordance with 37 C.F.R. §§ 1.56, 1.97 and 1.98. Copies of the references cited in the attached PTO/SB/08A B are enclosed. Furthermore, pursuant to 37 C.F.R. § 1.97(g) and (h), no representation is made that this is material to patentability of the present application or that a search has been made.

Applicant hereby submits that claims of Applicant's referenced patent application are patentably distinguishable from these references.

Applicant does not believe that any fees are due at this time; however, the Commissioner of Patents and Trademarks is hereby authorized to charge any fees relating to this Information Disclosure Statement to Deposit Account No 23-2426 of WINSTEAD SECHREST & MINICK P.C. (referencing matter 11321-P056US).

ATTORNEY DOCKET NO. 11321-P056US

Date: 628

Respectfully submitted,

Ross Spencer Garsson Registration No. 38,150

WINSTEAD SECHREST & MINICK P.C.

P.O. Box 50784

Dallas, Texas 75201-0784 Phone: (512) 370-2870 Fax: (512) 370-2851

HOUSTON_1\718675\1 11321-P056US 05/28/2004

PTO/SB/08A (04-03)

Approved for use through 04/30/2003. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE for the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

Sheet

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Cor	mplete if Known	
Application Number	10/714,014	
Filing Date	November 14, 2003	
First Named Inventor	Khabashesku, et al.	
Art Unit	1754	
Examiner Name	Unknown	
Attorney Docket Number	11321-P056US	

			U. S. PATENT D			
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevan Figures Appear	
	-	Number-Kind Code ^{2 (# known)} US-			r iguitos i opeai.	
		US-				
		US-				
		US-				
		US-				
	ļ —	US-				
		US-				
	 	US-		-		
		US-				
		US-				
		US-				
		US-				
		US-				
		US-				
		US-			7	
		US-				
_	 	US-	-			
		US-				
		US-				
	 	US-				

Examiner Initials*	Cite No.1	Foreign Patent Document	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages	
		Country Code ³ "Number ⁴ "Kind Code ⁵ (if known)	MM-DD-YYYY		Or Relevant Figures Appear	T
		WO 98/39250	09/11/98			
		WO 00/17101	03/30/00			
		WO 02/16257	02/28/02			
		WO 02/64868	08/22/02			
		WO 02/64869	08/22/02	/		

Examiner Signature	Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. Applicant's unique citation designation number (optional). See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ī

Substitut	te for form 1449/PTO				Complete if Known
Cubbina	FORMATION DISCLOSURITATEMENT BY APPLICAN (Use as many sheets as necessary)		Application Number	10/714,014	
INFO	ORMATION	DIS	CLOSURE	Filing Date	November 14, 2003
STA	TEMENT E	BY A	PPLICANT	First Named Inventor	Khabashesku, et al.
	(lica as many sho	ote ac a	occessed.	Art Unit	1754
	(Ose as many sne	era a a 11	ecessary	Examiner Name	Unknown
Sheet	2	of	4	Attorney Docket Number	11321-P056US

		NON PATENT LITERATURE DOCUMENTS	
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		Mickelson, et al., "Fluorination of single-wall carbon nanotubes",	
		Chem. Phys. Lett. 296 (1998), pp. 188- 194	
		Boul, et al., "Reversible sidewall functionalization of buckytubes",	
		310 Chem. Phys. Lett. (1999), pp. 367-372	ļ
		Saini, et al., "Covalent Sidewall Functionalization of Single Wall Carbon Nanotubes",	
		J. Am. Chem. Soc. 125 (2003), pp. 3617-3621	
		Mickelson, et al., "Solvation of Fluorinated Single-Wall Carbon Nanotubes in Alcohol	
		Solvents", J. Phys. Chem. B., Vol. 103 (1999), pp. 4318-4322	
		Khabashesku, et al., "Fluorination of Single-Wall Carbon Nanotubes and Subsequent	
		Derivatization Reactions", 35 Acc. Chem. Res. Vol. (2002) pp. 1087-1095	
		Khabashesku, et al., "Chemistry of carbon nanotubes", Vol. 1, The Encyclopedia of Nanoscience and	
		Nanotechnology, S. Nalwa, Ed., American Scientific Pub. (2004)	
		Stevens, et al., "Sidewall Amino-Functionalization of Single-Wall Carbon Nanotubes"	
		3 (3) Nano Lett. (2003), pp. 331-336	
		Bahr, et al., "Functionalization of Carbon Nanotubes by Electrochemical Reduction",	
		123 J. Am. Chem. Soc. (2001), pp. 6536-6542	
		Georgakilas, et al., "Organic Functionalization of Carbon Nanotubes", Vol. 124 (5) J. Am. Chem. Soc. (2002), pp. 760-761	
		Georgakilas, et al., "Purification of HiPCO Carbon Nanotubes via Organic Functionali-	
		zation". Chem. Commun. (2002), pp. 14318-14319	

Examiner	Date	
Signature	Considered	

^{**}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 120 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

Approved for use through 04/30/2003. OMB 0651-0031 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Substitut	te for form 1449/PTO			(Complete if Known
Cassaila				Application Number	10/714,014
INF	DRMATION	DIS	CLOSURE	Filing Date	November 14, 2003
STA	TEMENT E	BY A	PPLICANT	First Named Inventor	Khabashesku, et al.
	(Use as many she	ote se r	ooossand	Art Unit	1754
	(Ose as many sne	er2 92 L	recessary)	Examiner Name	Unknown
Sheet	3	of	4	Attorney Docket Number	11321-P056US

		NON PATENT LITERATURE DOCUMENTS	
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		Pantarotto, et al., "Synthesis, Structural Characterization, and Immunological Properties	
		of Carbon Nanotubes Functionalized", 125 J. Am. Chem. Soc. (2003), pp. 6160-6164	
		Chen, et al., "Chemical attachment of organic functional groups to single-walled carbon	
		nanotube material", 13 (9) J. Mater. Res. (1998), pp. 2423-2431	
		Chen, et al, "Solution Properties of Single-Walled Carbon Nanotubes",	
		282 Science (1998), pp. 95-98	
		Holzinger, et al., "Sidewall Functionalization of Carbon Nanotubes",	
		40 (21) Angew. Chem. Int. Ed. (2001), pp. 4002-4005	
		Peng, et al., "Sidewall finctionalization of single-walled carbon nanotubes with organic	
		peroxides", Chem. Commun. (2003), pp.362-363	
		Ying, et al., "Functionalization of Carbon Nanotubes by Free Radicals",	
		9 (5) Org. Lett. (2003), pp. 1471-1473	
		Kini, et al., "Two new synthetic routes to polyhydroxylated nanotubes", Rice Quantum	
		Inst. Sixteenth Annual Summer Research Colloquium (August 9, 2002), Abtr. pg. 25	
		Bahr, et al., "Highly Functionalized Carbon Nanotubes Using in Situ Generated	
		Diazonium Compounds", 13 Chem. Mater. (2001), pp. 3823-3824	
		Kooi, et al., "Electrochemical Modification of Single Carbon Nanotubes",	
	3	41 (8) Angew. Chem. Int. Ed. (2002), pp. 1353-1355	
		Tagmatarchis, et al., "Sidewall functionalization of single-walled carbon nanotubes	
		through electrophilic addition", Chem. Commun. (2002), pp. 2010-2011	

Examiner	Date	
Signature	Considered	

^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not

EXAMINER: Initial in reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation in not in conformance and not considered, Include copy of this form with next communication to applicant.

1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 120 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

PTO/SB/08B (04-03)

Approved for use through 04/30/2003, OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Substitut	te for form 1449/PT0	<u> </u>			Complete if Known	
Cubballa				Application Number	10/714,014	
INFO	ORMATIO	N DIS	CLOSURE	Filing Date	November 14, 2003	
STA	TEMENT	BY A	PPLICANT	First Named Inventor	Khabashesku, et al.	
	(Use as many s	hoote se r	oggessant	Art Unit	1754	
	Ose as many s	oneers as n	·	Examiner Name	Unknown	
Sheet	4	of	4	Attorney Docket Number	11321-P056US	$\overline{\mathcal{I}}$

Examiner Initials*	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		Pekker, et al., "Hydrogenation of Carbon Nanotubes and Graphite in Liquid Ammonia", 105 J. Phys. Chem. B. (2001), pp. 7938-7943	
		Fontana, et al., "New General and Convenient Sources of Alkyl Radicals, Useful for Selective Syntheses", 29 Tetrahedron Lett. (1988), pp. 1975-1978	
		Chiang, et al., "Purification and Characterization of Single-Wall Carbon Nanotubes Obtained From the Gas-Phase", 105 J. Phys. Chem. B (2001), pp. 8297-8301	
		Arndt, et al., "Quinone - Annonaceous Acetogenins: Synthesis and Complex I Inhibition Studies", 7(5) Chem. Eur. J. (2001), pp. 993-1005	
		Gu, et al., "Cutting Single-Wall Carbon Nanotubes through Fluorination" 2(9) Nano Lett. (2002), pp. 1009-1013	
		:	
			-

Examiner	Date	-
Signature	Considered	

^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered, include copy of this form with next communication to applicant.

1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 120 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.